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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,452	12/04/2003	Robert David Allen	ARC920030104US1	2060

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MINTZ, LEVIN, COHN, FERRIS, GLOVSKY AND POPEO, P.C
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PALO ALTO, CA 94304-1124

EXAMINER

CHU, JOHN S Y

ART UNIT	PAPER NUMBER
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1752

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/729,452

Applicant(s)

ALLEN et al

Examiner

John S. Chu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 20-35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/26/04, 4/26/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the application filed December 4, 2003.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over BAE et al (2004/0038150).

The claimed invention is drawn to the following:

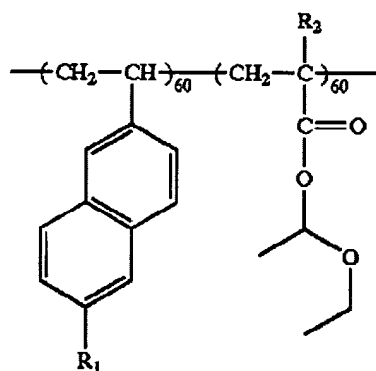
1. A process for patterning a substrate, comprising:
 - (a) coating the substrate with a film of a photoresist composition comprised of (i) a polymer that is rendered soluble in aqueous base at a temperature of less than about 100°C by acid-catalyzed deprotection of pendent acetal- or ketal-protected carboxylic acid groups, and (ii) a photoacid generator;
 - (b) patternwise exposing the film to an imaging radiation source so as to form a latent, patterned image in the film;
 - (c) baking the exposed film at a post-exposure bake temperature below about 100°C; and
 - (d) developing the latent image with a developer to form a patterned substrate.

BAE et al discloses a photoresist composition comprising in the resin component carbocyclic aryl units comprising naphthalene. Applicants are directed to Example 3 on page 7, paragraph [0078] – [0084] wherein the comonomeric unit to the vinyl naphthalene is 1-ethoxy ethyl methacrylate (EEMA). This comonomer in the copolymer resin of BAE et al meets the claimed polymer having the pendant acetal- or ketal carboxylic acid group recited in claim 1.

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The method of the claimed invention recites a process wherein a post-exposure bake include a temperature below about 100⁰ C. Applicants are directed to page 6, paragraph [0069] for the preferred post-exposure bake temperature, which is in a range of 70⁰ C to about 160⁰ C. Further Example 7, paragraph [0093] discloses a post-exposure bake temperature of 100⁰ C, which is interpreted to fall within the scope of “about 100⁰ C.

BAE et al lacks a working example wherein the copolymer of Example 3 is used in a method of Example 7. The copolymer as recited is seen here:



VN/EEMA: R₁ = H and R₂ = CH₃
 MVN/EEMA: R₁ = OCH₃ and R₂ = CH₃
 HVN/EEMA: R₁ = OH and R₂ = CH₃
 HVN/EEA: R₁ = and R₂ = H

It would have been *prima facie* obvious to one of ordinary skill in the art of photoresist composition to substitute the copolymer of Example 3 for the copolymer HVN/MADA/NLA in the ethod of Example 7 and reasonably expect same or similar results wherein the photoresist composition has highly resolved patterns and excellent adhesion to the substrate.

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32. Claims 20-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

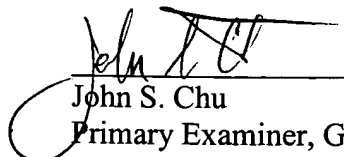
None of the prior art references disclose the specific copolymer having as recited in claim 20 for the first olefinic monomer and the second olefinic monomer.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


John S. Chu
Primary Examiner, Group 1700

J.Chu
June 11, 2006